IN THE CLAIMS:

Please cancel claims 6-11. Please also amend claim 12 and add new claims 13-23 as indicated in the following complete listing of claims:

1. (Original) In a multiplexer which divides a carrier pulse train having a predetermined amplitude into N pulse trains, modulates said N pulse trains by N data signals, respectively, to produce modulated N pulse trains, and time-division multiplexes said modulated N pulse trains, the improvement comprising:

an amplitude adjuster which implements an amplitude adjustment so that said modulated N pulse trains have different amplitudes from each other.

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2. (Original) The multiplexer according to claim 1, wherein said carrier pulse train has a period T between pulses thereof, and said modulated N pulse trains are time-division multiplexed with a phase difference of T/N.

3. (Original) The multiplexer according to claim 1, wherein said carrier pulse train is an optical carrier pulse train.

4. (Original) The multiplexer according to claim 1, wherein said N pulse trains are modulated by said N data signals through amplitude shift key modulation.

5. (Original) The multiplexer according to claim 1, wherein said N pulse trains are modulated by said N data signals through pulse code modulation.

Claims 6-11 have been cancelled.

12. (Currently Amended) A multiplex communication system comprising:

a multiplexer which divides a carrier pulse train having a predetermined amplitude into N pulse trains, modulates said N pulse trains by N data signals, respectively, to produce N modulated ~~N~~ pulse trains, and time-division multiplexes said N modulated ~~N~~ pulse trains to produce a multiplexed modulated pulse train, said multiplexer comprising an amplitude adjuster which implements an amplitude adjustment so that said N modulated N pulse trains have different amplitudes from each other; and

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a demultiplexer which comprises ~~receives said multiplexed modulated pulse train from said multiplexer, and extracts one of said modulated N pulse trains from said multiplexed modulated pulse train, said demultiplexer comprising:~~

~~an amplitude detector for deriving an amplitude of one of said modulated N pulse trains which is extracted, said amplitude detector deriving said amplitude directly or indirectly from said extracted modulated pulse train; and~~

~~a judging circuit for identifying said extracted modulated pulse train based on said amplitude derived by said amplitude detector~~

a transmitting/blocking section having an input port that receives the multiplexed modulated pulse train, a control signal corresponding to one of the N modulated pulse trains, and an output port that emits said one of the N modulated pulse trains corresponding to the control signal;

a reference section which receives the multiplexed modulated pulse train and generates a reference signal representing the average amplitude of pulses in the N modulated pulse trains;

a detection section which generates a detection signal with information identifying said one of the N modulated pulse trains that is emitted by the transmitting/blocking section;

a judgment section which compares the reference signal to the detection signal and generates a judgment signal; and

a control section which generates the control signal for the transmitting/blocking section on the basis of at least the judgment signal and a select signal that designates one of the modulated pulse trains.

13. (New) A demultiplexer for a time-division multiplexed pulse train that contains a plurality of modulated pulse trains which are generated by modulating un-modulated pulse trains with data signals, the un-modulated pulse trains having different pulse amplitudes, comprising:

a transmitting/blocking section having an input port that receives the multiplexed pulse train, a control signal corresponding to one of the modulated pulse trains, and an output port that emits the modulated pulse train corresponding to the control signal;

a reference section which receives the multiplexed pulse train and generates a reference signal representing the average amplitude of pulses in the modulated pulse trains;

a detection section which generates a detection signal with information identifying the modulated pulse train emitted by the transmitting/blocking section;

a judgment section which compares the reference signal to the detection signal and generates a judgment signal; and

a control section which generates the control signal for the transmitting/blocking section on the basis of at least the judgment signal and a select signal that designates one of the modulated pulse trains.

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14. (New) The demultiplexer of claim 13, further comprising a clock extractor that receives the multiplexed pulse train and generates a clock signal from it, and a divider that divides the clock signal, the divided clock signal being supplied to the control section.

15. (New) The demultiplexer of claim 14, wherein the control section comprises means for selectively shifting the phase of the divided clock signal or maintaining the phase substantially unchanged, the means being responsive to the select signal and the judgment signal.

16. (New) The demultiplexer of claim 14, wherein the control section comprises a controller that receives the judgment signal and the select signal, a phase shifting component that receives the divided clock signal and an output signal from the controller and that generates a pulse-sieving signal as an output, a phase adjuster that adjusts the phase of the pulse-sieving signal, and a drive amplifier that receives the phase-adjusted pulse-sieving signal and generates the control signal from it.

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17. (New) The demultiplexer of claim 13, wherein the pulses of the pulse trains are optical pulses and the transmitting/blocking section is an electric field absorption optical modulator, the detection section receiving a signal from the modulator.

18. (New) The demultiplexer of claim 13, wherein the pulses of the pulse trains are optical pulses and the transmitting/blocking section is an optical modulator employing a Mach-Zehnder interferometer

19. (New) The demultiplexer of claim 18, further comprising a detector that detects the modulated pulse train emitted by the optical modulator, the detection section receiving a signal from the optical modulator.

20. (New) The demultiplexer of claim 13, wherein the pulses of the pulse trains are optical pulses, where two pulse trains are time-division multiplexed to form the multiplexed pulse train, the two pulse trains having pulse periods that are substantially the same, and further comprising means for generating a sinusoidal signal having a period that is substantially the same as the pulse period of the pulse trains.

21. (New) The demultiplexer of claim 20, wherein the means comprises a clock extractor that receives the multiplexed pulse train, and a divide by two divider that divides an output signal from the clock extractor to generate the sinusoidal signal.

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22. (New) The demultiplexer of claim 21, wherein the control section comprises means, responsive to the judgment signal and the select signal, for selectively inverting or not inverting the sinusoidal signal.

23. (New) The multiplexer of claim 1, wherein the carrier pulse train is a train of optical pulses.